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FOOD AND NUTRITIONAL PROFILE OF INFANTS TREATED IN BASIC HEALTH UNIT IN RIO GRANDE DO NORTE

Amanda de Conceição Leão Mendes[1], Dayanna Joyce Marques Queiroz[2], Andressa Názara Lucena Melo[2], Thaiz Mattos Sureira[3], Nila Patrícia Freire Pequeno[4]

Abstract

Objectives: Check the profile of breastfeeding, introduction of foods, eating habits, nutritional status of infants and relate the duration of exclusive breastfeeding (EBF) and maternal anemia. **Methods:** Cross-sectional study of 22 infants 6-24 months old. Mothers answered a semi-structured questionnaire and the infant underwent anthropometric assessment. Statistical analysis was performed using the chi-squared test, considering a significance level $p < 0.05$. **Results:** 22.73% were overweight, the average Exclusive Breastfeeding was 123.2 days (SD ± 68.9 days), 63.63% for less than 6 months. The duration of exclusive breastfeeding was significantly associated with female sex ($p= 0.042$) and the number of prenatal visits ($p = 0.002$), 36.4% of mothers had anemia during pregnancy, this was associated with sanitation ($p = 0.03$) and the number of prenatal visits ($p = 0.002$). The foods most frequently introduced before six months were, respectively, fruit juice (27.3%), sugar (21%), fruit (13.63%), rice or macaroni (9%), beef, chicken or egg (5.3%), vegetables (5%) and beans (4.8%). **Conclusion:** EBF is little practiced, the increase in the early introduction of other foods being a cause for concern, it being essential to create strategies to encourage and support breastfeeding, as well as prevent overweight in this age group.

Key words: breastfeeding, infant nutrition, nutritional status.

INTRODUCTION

A child's first two years of life are characterized by rapid growth and significant advances in the process of development and thus represent a critical period of vulnerability to social, economic and environmental ills. Nutritional deficiencies or inadequate conduct as regards feeding practices in this phase can increase the risks of infant morbimortality and inadequate growth and development[1].

The World Health Organization (WHO)[2] recommends exclusive Breast Feeding (EBF) up to six months of age with no complementation of liquids or any other foodstuffs, as the mother's milk (MM) contains all the nutrients essential for the child, contributing to its full development and growth. Further, the immunity provided by the mother's milk is essential to the new-born (NB), protecting it from various diseases and infections.

After the sixth month of life breast-feeding should be complemented with other sources of nourishment, because the mother's milk is not alone sufficient to supply all the nutritional needs of the child when it is continued up to two years or more of age[2].

As from the first six months of life, the majority of children attain a stage of neurological development (involving chewing, swallowing, digestion and excretion) which permits them to receive other foodstuffs beyond their mothers' milk. Thus the precocious introduction of complementary foodstuffs as also their late inclusion provoke negative consequences for the child's health[3].

The period between 6 and 24 months of age is considered critical for the promotion of adequate nutrition, seeing that it is in this phase that there occur the greatest prevalence of sub-nutrition and the deficiencies of particular micronutrients[4]. The introduction of complementary feeding is of considerable risk for the infant, both because of the great possibility of its being offered improper foodstuffs as also because of

1 Specialist in Mother and Child Health for the Multi-professional Integrated Residence program in Mother and Child Health, Hospital Universitário Ana Bezerra, Universidade Federal do Rio Grande do Norte (UFRN), Brazil, Nutritionist graduated at the Universidade Federal do Pará (UFPA).
2 Nutritionist, Multi-professional Integrated Residence program in Mother and Child Health, Hospital Universitário Ana Bezerra, Universidade Federal do Rio Grande do Norte, Brazil.
3 Professor of Nutrition, Faculdade de Ciências da Saúde do Trairi/ FACISA, Universidade Federal do Rio Grande do Norte, Brazil.
4 Professor of Nutrition Department, Universidade Federal do Rio Grande do Norte, Brazil.
Corresponding author: amandalmendes@yahoo.com.br

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the risk of abrupt weaning. This introduction should, therefore, be gradual and offer foods rich in energy and micronutrients[3].

A pattern of feeding has been observed among Brazilian children which is characterized by the early replacement of human milk by cow's milk and, also, by the addition of other foodstuffs with low bioavailability of iron[5].

Thus the objective of this study was to ascertain the profile of maternal breast-feeding, the introduction of other foodstuffs, the feeding habits and nutritional status of breast-feeding infants and correlate the time of exclusive breast-feeding (EBF) and maternal anemia.

METHODS

This is a descriptive, cross-sectional study in which the sample is non-probabilistic. Breast-feeding infants of from 6 to 24 months of age, of both sexes, were included in the study. They were all born at term (≥ 37 weeks' gestational age) with weight at birth e" 2,500 grams, with no syndromes or congenital abnormalities, of singleton births and mothers aged ≤ 20 years, the persons responsible being resident in the city of Santa Cruz-RN. The exclusion criteria adopted were: breast-feeding infants of less than 6 or more than 24 months, pre-term (< 37 weeks' gestational age), low birth-weight (< 2,500 g), bearers of syndromes or congenital abnormalities, born of multiparous mothers or those aged < 20 years.

The data collection was undertaken at one Basic Health unit in the city of Santa Cruz. The average monthly attendance at the Growth and Development (GD) service of this unit was of 40 breast-feeding infants, 22 of whom, aged from 6 to 24 months of age, met the inclusion criteria. The period of collection was the month of December 2012. Initially, the mothers responsible were approached and received detailed information on the study, its objectives, methodology and possible risks involved and later voluntarily signed the Informed Consent Form (ICF). After the ICF had been returned, the mothers replied to a semi-structured questionnaire containing questions as to their socio-economic and environmental level, the history of the pregnancy, morbidities, and iron supplementation during the pregnancy and post-partum period, as also questions related to their breast-feeding, introduction of other foods and their consumption. Later, the breast-feeding infant underwent anthropomorphic assessment, with measurement of weight, length and cephalic circumference.

The data of the infant related to its birth such as weight, length, cephalic circumference and APGAR were collected from the child's vaccination card. A digital pediatric scales, an infantometer and an inelastic measuring tape were used, respectively, for the measurement of the weight, length and cephalic circumference.

The weight and length of the breast-feeding infants were assessed in terms of the relation Weight/Age (W/A), Length/Age (L/A), Weight/Length (W/L) and Body Mass Index/Age (BMI/A) and analyzed in accordance with the Z-score classification of the WHO by means of the ANTRHO (2007) program[6].

The data were analyzed using the Epi Info versão 3.5.2 statistical program[7]. The statistical analyses were undertaken by means of the Chi-squared test, the level of statistical significance taken being $p < 0.05$.

The project was approved by the Research Ethics Committee for Research on Human Beings of the Hospital Universitário Onofre Lopes (HUOL) of the Universidade Federal do Rio Grande do Norte (process nº 59134/2012 and 201.409/2013).

RESULTS

The sample consisted of 22 breast-feeding infants of whom 59 % (nr. 13) were boys. Table 1 gives the infants' characteristics at birth and at the time of the beginning of the project, the average age being 13.8 months (SD ± 5.1 months) with a minimum of 6 and a maximum of 24 months.

Table 1: Descriptive statistics of the variables at birth and present of the infants attended at a Basic Health Unit, Santa Cruz- Rio Grande do Norte, 2012

DESCRIPTIVE STATISTICS					
Variables	**Average**	**Median**	**Minimum**	**Maximum**	**Standard Deviation**
Age (months)	13.8	13	6	24	5.1
Weight at birth(g)	3300	3247.5	2545	3980	451.1
Length at birth(cm)	48.6	49	42	52	2.3
Cephalic circumference(cm)	34.4	34.5	32	39	1.6
APGAR 5th minute	8.9	9	8	10	0.5
Gestational Age	40.1	40	37	42	1.2
Present weight(g)	10480.5	10100	7700	14000	1976.9
Present length(cm)	75.8	74.2	64	89	7.5
Present cephalic circum.(cm)	46.7	46	42.7	51	2.2

With regard to nutritional status (table 2), according to the parameters Weight/Length (W/L), Weight/Age (W/A) and BMI/Age (BMI/A), 18.18% of overweight, 9% of excess weight and 9.1 % of obesity were observed, respectively. In view of the values of overweight and obesity in accordance with BMI/A, 22.73% of the children presented excess weight.

As regards maternal breast-feeding, no child was on Exclusive Breast Feeding (EBF) but

Table 2: Nutritional status of the infants attended at a Basic Health Unit, Santa Cruz-RN, 2012

NUTRITIONAL STATUS	n	%	IC 95%*
Weight/length for age			
Eutrophia	10	45.45	24.4-67.8
Risk of overweight	8	36.36	17.2-59.3
Overweight	4	18.18	5.2-40.3
Weight/Age			
Eutrophia	20	91.0	70.8-98.9
Excess Weight	2	9.0	1.1-29.2
BMI/Age			
Eutrophia	12	54.54	32.2-75.6
Risk of overweight	5	22.72	7.8-45.5
Overweight	3	13.63	2.9-34.9
Obesity	2	9.1	1.1-29.2
Length/Age			
Adequate	18	81.81	59.7-94.8
Short	4	18.18	5.2-40.3

* 95% Confidence Interval

63.63% (n:14) were on mixed maternal breast-feeding. The average EBF time was of 123.2 days (SD ± 68.9 days) with a median of 150 days, maximum of 240 and minimum of 2 days. The greatest frequency observed (31.8%, n:7) was of 180 days, however, when the time period was distributed between time of less than 180 or equal to or greater than 180 days, the greater frequency was found for the period of less than 180 days of EBF with 63.63% (n:14) of the infants.

Table 3 gives the association of maternal characteristics: socio-economic, environmental,

Table 3: Association of maternal, socioeconomic, environmental, pre-natal characteristics and sex of infant with duration of EBF, Santa Cruz-RN, 2012

VARIÁBLES	EQUAL TO OR GREATER THAN 6 MONTHS N	%	LESS THAN 6 MONTHS N	%	TOTAL	%	p*
MATERNAL AGE							
20 to 25 years	2	20.0	8	80.0	10	45.50	0.34
26 to 30 years	4	44.4	5	55.6	9	40.90	
31 to 35 years	1	50.0	1	50.0	2	9.10	
> 35 years	1	100.0	-	-	1	4.50	
INFANT'S SEX							
Male	5	38.5	8	61.5	13	59.10	0.042
Female	3	33.3	6	66.7	9	40.90	
SCHOOLING							
Fundamental complete	-	-	2	100.0	2	9.10	0.34
Fundamental incomplete	3	75.0	1	25.0	4	18.20	
Intermediate complete	2	28.6	5	71.4	7	31.80	
Intermediate incomplete	3	37.5	5	62.5	8	36.40	
Higher complete	-	-	1	100.0	1	4.50	
MARITAL STATUS							
Married	5	50.0	5	50.0	10	45.50	0.27
Single	-	-	3	100.0	3	13.60	
Stable	3	33.3	6	66.7	9	40.90	
Below 1 legal minimum salary	7	41.2	10	58.8	17	77.30	0.61
1 to 2 legal minimum salaries	1	25.0	3	75.0	4	18.20	
2 to 5 legal minimum salaries	-	-	1	100.0	1	450	
TYPE of HOUSE							
Own	3	21.4	11	78.6	14	63.60	0.06
Rented	4	80.0	1	20.0	5	22.70	
Lent	1	33.3	2	66.7	3	13.60	
NUMBER of RESIDENTS							
Up to 3	4	30.8	9	69.2	13	59.10	0.49
4 to 5	4	50.0	4	50.0	8	36.40	
6 or more	-	-			1	100.0	1
4.50							
NUMBER of PRE-NATAL VISITS							
< 6	2	50.0	2	50.0	4	18.20	0.002
> or = 6	6	33.3	12	66.7	18	81.80	
NUMBER of PREVIOUS PREGNANCIES							
None	4	33.3	8	66.7	12	54.50	0.13
2 or 3	2	25.0	6	75.0	8	36.40	
More than 3	2	100.0	-	-	2	9.10	

*Chi-squared test

pre-natal visits and sex of infant, with time of EBF. A significant relationship was found only for sex (p = 0.042) and for number of pre-natal visits (p = 0.002).

As regards maternal characteristics, the average age was of 26.5 years (SD ± 6 years), with a maximum of 46 and a minimum of 20 years. It was found that 45.5 % (n. 10) were married, 36.4 % (n.8) had incomplete intermediate schooling, 59.1% (n. 13) lived with up to 3 other dwellers including the infant, 63.6% (n.14) lived in their own house, 77.3 % (n.17) declared that they received up to 1 minimum salary (Table 3), 72.72% (n.16) received assistance from federal government income-transfer programs, and of these 100% received "bolsa família". As regards basic sanitation (Table 4), 77.3% (n.17) said they had it.

Concerning pre-natal visits and obstetric data, 54.54% (n.12) of the mothers were primiparae, 100% (n.22) reported making pre-natal visits, the average number being 8.5 (SD ± 3.1), type of delivery was homogeneous, 50% (n.11) being normal and 50% (n.11) cesarean.

When questioned on the diagnosis of anemia during the pregnancy, 63.6% (n. 14) denied having had anemia and 36.4% (n. 8) reported having had it. (Table 4); 100% (n. 22) referred to having taking iron and folic acid supplement during that period and 59% (n. 13) said they had taken iron supplement in the post-partum period.

Table 4 sets out some socio-economic and environmental characteristics and the data regarding the diagnosis of anemia during the

Table 4: Association of socioeconomic, environmental and pre-natal factors with diagnosis of anemia during pregnancy, Santa Cruz-RN, 2012

	ANEMIA DURING PREGNANCY						
	YES		NO		TOTAL		
VARIABLES	N	%	n	%	N	%	p*
TYPE of HOUSE							
OWN	4	28.6	10	71.4	14	63.6	0.45
RENTED	2	40.0	3	60.0	5	22.7	
LENT	2	66.7	1	33.3	3	13.6	
NUMBER of RESIDENTS							
3 or less	7	53.8	6	46.2	13	59.1	0.11
4 or 5	1	12.5	7	87.6	8	36.4	
6 ou more	-	-	1	100.0	1	4.5	
BASIC SANITATION							
YES	6	35.3	11	64.7	17	77.3	0.03
NO	2	40.0	3	60.0	5	22.7	
INCOME							
1 legal minimum salary or less	6	35.3	11	64.7	17	77.3	0.63
1 to 2 minimum salaries	2	50.0	2	50.0	4	18.2	
2 to 5 minimum salaries	-	-	1	100.0	1	4.5	
MATERNAL AGE							
20 to 25 years	4	40.0	6	60.0	10	45.5	0.43
26 to 30 years	2	22.2	7	77.8	9	40.9	
31 to 35 years	1	50.0	1	50.0	2	9.1	
> 35 years	1	100.0	-	-	1	4.5	
NUMBER of PRENATAL VISITS							
< 6	1	25.0	3	75.0	4	18.2	0.002
> or = 6	7	38.9	11	61.1	18	81.8	

*Chi-squared test

pregnancy. A statistically significant association is to be observed between the variables basic sanitation (p = 0.03) and number of pre-natal visits ≥ 6 (p = 0.002).

As for the introduction of some other kind of milk, all the children assessed had had contact with non-maternal milk. On the date of the assessment 77.27% (n.17) took cow's milk in some form, either liquid or powdered, 18.18% (n.4) ingested artificial formulas and 4.5% (n.1) goat's milk. The average age at the introduction of the other kind of milk was 149.2 days (SD ± 90.5 days). The introduction of the artificial formula occurred on average at 91.8 days (SD ± 70.7 days); as for liquid cow's milk the average age at introduction was 193.8 days (SD ± 88.9 days) and for powdered cow's milk 130 days (SD ± 62 days), the goat's milk being offered just to one child on its third day of life.

As regards complementary feeding on the occasion of the interview: 100% (n. 22) took fruit juice, fruit and rice or macaroni; 86.36% (n. 19) consumed beef, chicken or egg as part of their menu, sugar being used in the preparations; 91% (n.20), 95.45% (n.21) and 95.45% (n. 21) consumed, respectively, green vegetables/ vegetables, beans and tidbits. The frequency of the consumption of these items as reported by the mothers is given in figure 1.

The foodstuffs most frequently introduced before six months of age, after non-maternal milk were: fruit juice, at an average age of 178.6 days (SD ± 55.9 days) 27.3% (n.6/22); sugar at an average age of 205.3 days (SD ± 75.7 days) 21%

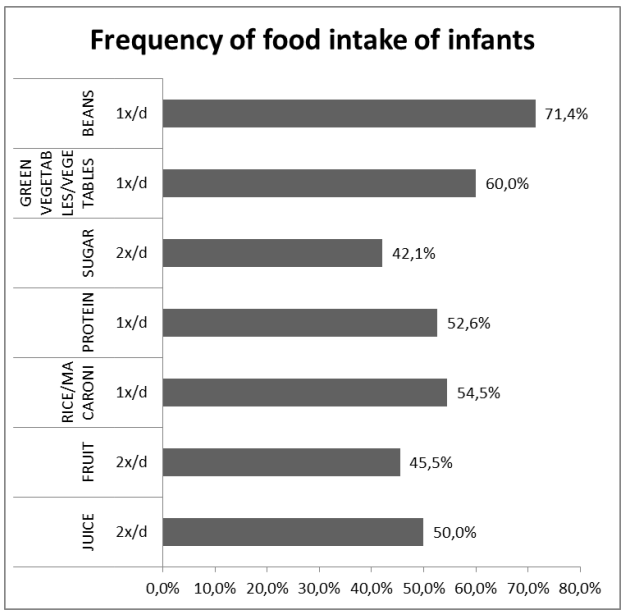

Figure 1: Percentage of food consumption reported by mothers of infants treated at a Basic Health Unit, Santa Cruz- Rio Grande do Norte, 2012

(n.4/19); fruit at an average of 190.2 days (SD ± 47.7 days) 13.63% (n.3/22); rice or macaroni at an average 218.2 days (SD ± 51.7 days) 9% (n.2/22); proteins such as beef, chicken and egg at an average age of 233.7 days (SD ± 74.6 days) 5.3% (n.1/19); green vegetables and vegetables at an average 207 days (SD ± 51.4 days) 5% (n. 1/20) and, finally, beans at an average age of 220 days (SD ± 54.8 days) 4.8% (n.1/21).

As for the introduction of tidbits such as biscuits, soft drinks, pasties, popcorn, sausage, among others, no child had had any contact with them before six moths of age, the general average age for them being 254.3 days (SD ± 70.8 days) with a respective maximum and minimum of 360 and 180 days.

DISCUSSION

The problem of excess weight has been affecting ever-younger children, and has become an even more serious problem in terms of public health[8]. In this present study the percentage of risk of excess weight, overweight and obesity was found to be high, evidencing a nutritional transition among the breast-feeding infants, during which there is an increase in the frequency of cases of overweight/obesity and a reduction in the number of cases of undernourishment.

Similar results regarding excess weight were found in a study by Souza & Farias[9] of children in public schools in Rio Branco – State of Acre, according to which 17.6 % presented overweight, 17.3 % of the boys and 17.8 % of the girls. Orlonski *et al.*[10] assessed 335 school children in an integrated school unit and reported excess weight in 27.8 % of the children. Another study undertaken of 3957 children aged between 1 month and 5 years, recruited on a national vaccination day, also presented a prevalence of excess weight in 9.8% of them[11].

These results show an alarming increase in excess weight among the infant population over recent decades. Barros *et al.*[12] affirm that in 1974 excess weight in the pediatric age group presented a value of 4.9% - which grew to 14% in the years 1996-97, a fact seen as worrying in terms of public health seeing that obese children can become obese adults, resulting in various diseases not only in infancy but also in the adult phase.

The majority of the children assessed were being breast-fed, in agreement with the findings of the research of Vieira *et al*. [13] into 2319 breast-fed infants of less than 12 months of age assessed on the national vaccination day when a frequency of 69.2% of them was found to be being breast-fed. Another research project found lower results, 50% of the children assessed of from 6 to 24 months of age attending a family health program in Acrelândia- Acre were found to be being breast-fed[1].

Data related to the II research project on maternal breast-feeding in Brazilian state capitals and the Federal District have been presented by Venancio *et al*.[14]. A total of 34,366 infants of less than 12 months of age participated in that project undertaken during a multivaccination campaign. It was found that 58.7% of the infants involved, of between 9 and 12 months, were being breast-fed. As for the regions, the northern region presented the best result with 76.9% of breast-fed children and the southern region the worst with 49.5%, while the North-east presented 59.1%, a better result than the South-east with 51.4%. Another study conducted by Wenzel et al[15] with a sample of 2958 children of from zero to 1 year of age in the Brazilian regions found that 58% of the children of up to 6 months of age were being breast-fed. The region which presented the highest breast-feeding rate among infants of up to 6 months of age was the North with 63%, the worst being the South-east with 51%. However, for those children of more than 6 months the overall breast-feeding prevalence was of 35 % while among the regions, the North presented 44% and the Mid-west 28%, these being, respectively, the best and the worst results.

The periods of duration of the average and median EBF and the percentage of EBF up to 180 days confirmed the Brazilian characteristic of precocious weaning[5]. These data corroborate those of other studies, all the Brazilian regions presenting rates below 50%, the highest prevalence being that of the northern region with 45.9% and the lowest the north-eastern region with 37%[14]. Simon *et al*.[16] assessed the breast-feeding practices of children of private schools in the municipality of São Paulo and found that only 21.4 % of the children had been fed exclusively on the breast until they were six months of age.

However, the average and median values of EBF in this study are higher than those given in other studies. Among Brazilian state capitals

and the Federal District the median value is of 54.1 days[14], another study found a median value of 90 days [17].

These results are very far from the levels recommended by the WHO[2], there being a need for an adequate strategy to strengthen the practice of breast-feeding in the population studied.

The significant association (p=0.042) of the female sex with a shorter period of EBF is different from the results found by Victora *et al*.[18] in Pelotas, where the girls were breast-fed for longer. Caminha *et al* [19] also considered female sex as a protective factor for exclusive breast-feeding.

Those authors suggest the possibility that the mothers and/or health workers believe that the boys may have greater nutritional needs and thus that they should receive supplementary foodstuffs earlier than the girls, thus contributing to the protective factor of the female sex[19], this was not, however, what was observed in this present study. These findings clearly call for further investigation.

The significant association (p=0.002) of the lesser time of EBF with the number of pre-natal visits ≥ 6 also showed a divergence from the results of other studies, because it is believed that the number equal to or greater than 6 pre-natal visits may encourage EBF. Some studies found that women who had less than 5 visits breast-fed their children for a shorter period, while those who had a greater number of visits also increased the length of the period of EBF[20-21].

The study of *Chaves et al*.[20] also produced divergent data, the shorter period of maternal breast-feeding being related to a number of pre-natal visits of less than 5 and more than 9 as compared to those who had between 5 and 9 visits. These data regarding the association between a greater number of pre-natal visits and a shorter period of maternal breast-feeding cannot be satisfactorily explained. One may, however, speculate as to the possibility of a higher degree of anxiety and insecurity in these women or even a lack of information during the pre-natal period - thus further study of this group of patients is necessary.

It is known that levels of schooling and family income are determining factors in epidemiological studies. No statistically significant differences were, however, observed (p=0.34) and (p=0.61), respectively, in the relationship between these factors and the time of exclusive breast-feeding.

The diagnosis of anemia presented during pregnancy was less frequent than that in pregnant women of the semi-arid region of Alagoas, where 50% of them presented anemia and only 17.6% used iron supplementation[22], differently from this study in which all the mothers reported using iron and folic acid supplementation during the pre-natal period, a fact which may have contributed to the lower number of cases of anemia. This considerable number of women who use iron supplementation is in accord with the recommendation of the Ministry of Health[23], which encourages the use of iron supplementation as from the 20th week through to the end of the pregnancy. It is worth pointing out the methodological differences between the studies, this present one not having used hematological analyses, but only the diagnosis as reported by the mother.

The significant association (p = 0.03) between the absence of anemia and better basic sanitation and number of pre-natal visits ≥ 6 (p = 0.002) strengthens the idea that adequate basic sanitation together with a satisfactory number of pre-natal visits with the possibility of access to information and adequate supplementation appear to be protective factors against the development of anemia. Precarious sanitary conditions are aggravating factors for the development of this pathology and consequent absence of treatment – which leads to an increase in the number of cases and to maternal and fetal complications.

Vitolo *et al*.[24] found no significant association between number of pre-natal visits and anemia. On the other hand, they did find significant associations for schooling, income and number of people dwelling in the home, differently from what was found in this study, in which these variables presented no significant association (p ≥ 0.05).

As regards the introduction of non-maternal milk, the infants assessed presented the characteristics of precocious introduction, the general average age at introduction being well below that recommended by the Ministry of Health[25] whose guidance is that cow's milk should be introduced at 360 days at the earliest and that artificial formulas should be introduced only in special cases in which maternal breast-feeding is impossible and with the specific authorization of the doctor or nutritionist. No other foodstuff or modified industrialized milk is capable of offering all the nutrients contained in the mother's milk[26].

Despite the importance of maternal breast-feeding's being known, the indices of the frequency and persistence of breast-feeding have been challenging the efficacy of innumerable governmental and non-governmental programs to encourage maternal breast-feeding throughout the country[26]. Together with this, beyond the introduction of non-maternal milk, the precocious introduction of all the foodstuffs investigated has been demonstrated, both in this and in other studies[27-28].

Data from the study of Torigoe *et al*.[29] show that the mothers of infants attended in a nutrition clinic in the city of São Paulo already, on their first visit, reported the introduction of some improper foodstuffs such as additional sugar (22,2%) and petit suisse cheese (11,1 %) into the children's diet before their first birthday.

The ingestion of other foodstuffs beyond the mother's milk before 6 months of age is considered unnecessary and as capable of interfering negatively in the formation of eating habits, presenting risks to the digestive and breathing tracts and the renal function, as also

contributing to over-feeding, leading to an increase in overweight and obesity[17].

The precocious introduction of complementary foodstuffs increases infant morbimortality due to the consequent lesser ingestion of the protective factors present in maternal milk, thus making the child more vulnerable to infectious diseases and undernourishment, as well as interfering in the absorption of important nutrients of maternal milk such as iron and zinc and favoring the risk of allergy to foodstuffs[29].

Only as from the sixth month of life will a child have developed the necessary reflexes for swallowing, such as the lingual reflex of the tongue, already demonstrate stimulation at the sight of food, holding its head up - thus making it easier to take food from a spoon – and begun to present its first teeth, which makes chewing easier[30].

On the other hand, it was discovered that at the moment of the interview no beef or chicken or egg, green vegetables/vegetables or beans had yet been introduced into the food of some of the infants. This fact was also found in the study of Garcia *et al*.,[1] in which 29.6% of the children of from 6 to 8 months had still not received a salt meal and 20% of these children received only liquids. In the study of Brunken *et al*.,[28] one part of the children investigated also did not take fruit at 12 months of age and there were still children who, at 8 months of age, did not eat meat, beans or soup, in another research project[17] there was also some delay in the offer of fruit, vegetables and eggs to some children.

As for the frequency with which the foodstuffs investigated were consumed, it is worth pointing out that they were analyzed only in quantitative and not qualitative terms, ascertaining the number of times in the day that the particular foodstuff was found in the menu, and it was discovered that the frequency of the consumption of some foodstuffs such as green vegetables/vegetables, proteins (beef, chicken) and rice or macaroni was below the level recommended for the majority of the children assessed, for whom one expects that these foodstuffs be offered at least twice a day[25].

One may speculate that the late introduction and low consumption of some of the foodstuffs may be due to the fears, doubts and contradictory information found in cultural factors, beliefs and taboos, which compromise the feeding of the child. It is important to emphasize that, in the same way as precocious complementary feeding is harmful, so also is the late introduction of complementary foodstuffs and its low consumption undesirable, seeing that they may cause nutritional deficiencies with a consequent slowing of growth and reduction in the child's immunity[30].

It was discovered in this study that even in the face of national campaigns which seek to promote and encourage exclusive breast-feeding up to six months of age and its complementation up to two years of age, this practice is still far from the desirable level, despite having reached higher proportions when some Brazilian cities and the Federal District are compared. The increasing growth of the precocious introduction of foodstuffs is worrying and may have contributed to the excess weight and risk of overweight among the infants assessed.

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